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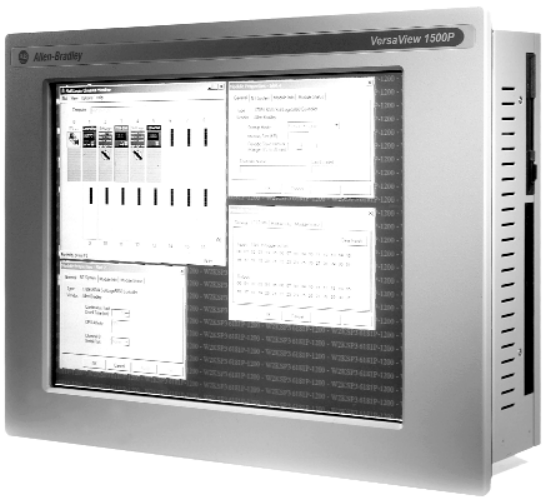
SOFTLOGIX5800 CONTROLLERS

SELECTION GUIDE

1789-L10, 1789-L30, 1789-L60



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Rockwell Automation

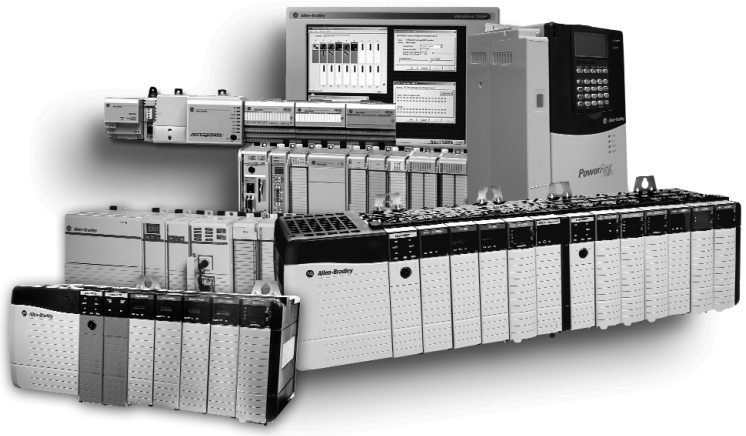
Logix Controllers Comparison

Common Characteristics	1756 ControlLogix	1756 GuardLogix	1768 CompactLogix	1769 CompactLogix	1789 SoftLogix5800	1794 FlexLogix	PowerFlex 700S2 with DriveLogix
Controller tasks: • Continuous • Periodic • Event	• 100 tasks • Event tasks: all event triggers	• 100 tasks • Event tasks: all event triggers	• 16 tasks • Event tasks: consumed tag, EVENT instruction, axis, and motion event triggers	• 1769-L35x: 8 tasks • 1769-L32x: 6 tasks • 1769-L31: 4 tasks • Event tasks: consumed tag and EVENT instruction triggers	• 100 tasks • Event tasks: all event triggers, plus outbound and Windows events	• 8 tasks • Event tasks: consumed tag and EVENT instruction triggers	• 8 tasks • Event tasks: axis and motion event triggers
User memory	1756-L55M12: 750 KB 1756-L55M13: 1.5 MB 1756-L55M14: 3.5 MB 1756-L55M16: 7.5 MB 1756-L55M22: 750 KB 1756-L55M23: 1. 5 MB 1756-L55M24: 3.5 MB 1756-L60M03SE: 750 KB 1756-L61: 2 MB 1756-L62: 4 MB 1756-L63: 8 MB 1756-L64: 16 MB	1756-L61S: 2 MB Standard 1 MB Safety 1756-L61S: 4 MB Standard 1 MB Safety	1768-L43: 2 MB	1769-L31: 512 KB 1769-L32x: 750 KB 1769-L35x: 1.5 MB	1789-L10: 2 MB; 3 slots; No motion 1789-L30: 64 MB; 5 slots 1789-L60: 64 MB; 16 slots	1794-L34: 512 KB	256 KB 768 KB with memory expansion
Nonvolatile user memory	1756-L55M12: none 1756-L55M13: none 1756-L55M14: none 1756-L55M16: none 1756-L55M22: yes 1756-L55M23: yes 1756-L55M24: yes 1756-L6x: CompactFlash	CompactFlash	CompactFlash	CompactFlash	None	Yes	Yes (expansion memory)
Built-in communication ports	1 port RS-232 serial	1 port RS-232 serial	1 port RS-232 serial	• 1769-L31: 2 RS-232 ports • 1769-L32C, -L35CR: 1 ControlNet port and 1 RS-232 serial port • 1769-L32E, -L35E: 1 EtherNet/IP port and 1 RS-232 serial port	Depends on personal computer	• 1 port RS-232 serial • 2 slots for 1788 communication cards	• 1 port RS-232 serial • 1 slot for 1788 communication cards
Communication options (these options have specific products and profiles for their platform - other options are available via third party products and generic profiles)	• EtherNet/IP • ControlNet • DeviceNet • Data Highway Plus • Remote I/O • SynchLink	• EtherNet/IP (standard and safety) • ControlNet (standard and safety) • DeviceNet (standard and safety) • Data Highway Plus • Remote I/O • SynchLink	• EtheNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet
Serial port communications	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus
Connections	• 100 ControlNet • 128 EtherNet/IP • 64 TCP/IP	• 48 ControlNet • 128 EtherNet/IP • 64 TCP/IP	• 48 ControlNet • 64 EtherNet/IP • 32 TCP/IP	• 32 ControlNet • 32 EtherNet/IP • 32 TCP/IP	• 48 ControlNet • 128 EtherNet/IP • 64 TCP/IP	• 32 ControlNet • 32 EtherNet/IP • 64 TCP/IP	• 32 ControlNet • 32 EtherNet/IP • 64 TCP/IP
Controller redundancy	Full support	None	NA	NA	NA	Backup via DeviceNet	NA
Simple motion	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive
Integrated motion	SERCOS interface Analog options: • Encoder input • LDT input • SSI input	SERCOS interface Analog options: • Encoder input • LDT input • SSI input	SERCOS interface	NA	SERCOS interface Analog options: • Encoder input • LDT input • SSI input	NA	• 1 full servo • 1 feedback axis
Programming languages	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC • External routines (developed in C/C++)	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC

Logix Platforms

Allen-Bradley Logix platforms provide a single integrated-control architecture for discrete, drives, motion, process, and safety control.

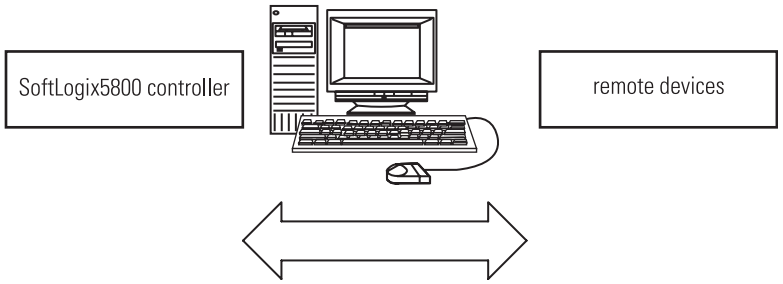
The Logix platforms provide a common control engine, programming software environment, and communication support across multiple hardware platforms. All Logix controllers operate with a multitasking, multiprocessing operating system and support the same set of instructions in multiple programming languages. One RSLogix 5000 programming-software package programs all Logix controllers. And, as part of the Integrated Architecture, all Logix controllers offer the benefits of the Common Industrial Protocol (CIP) to communicate via EtherNet/IP, ControlNet, and DeviceNet networks.



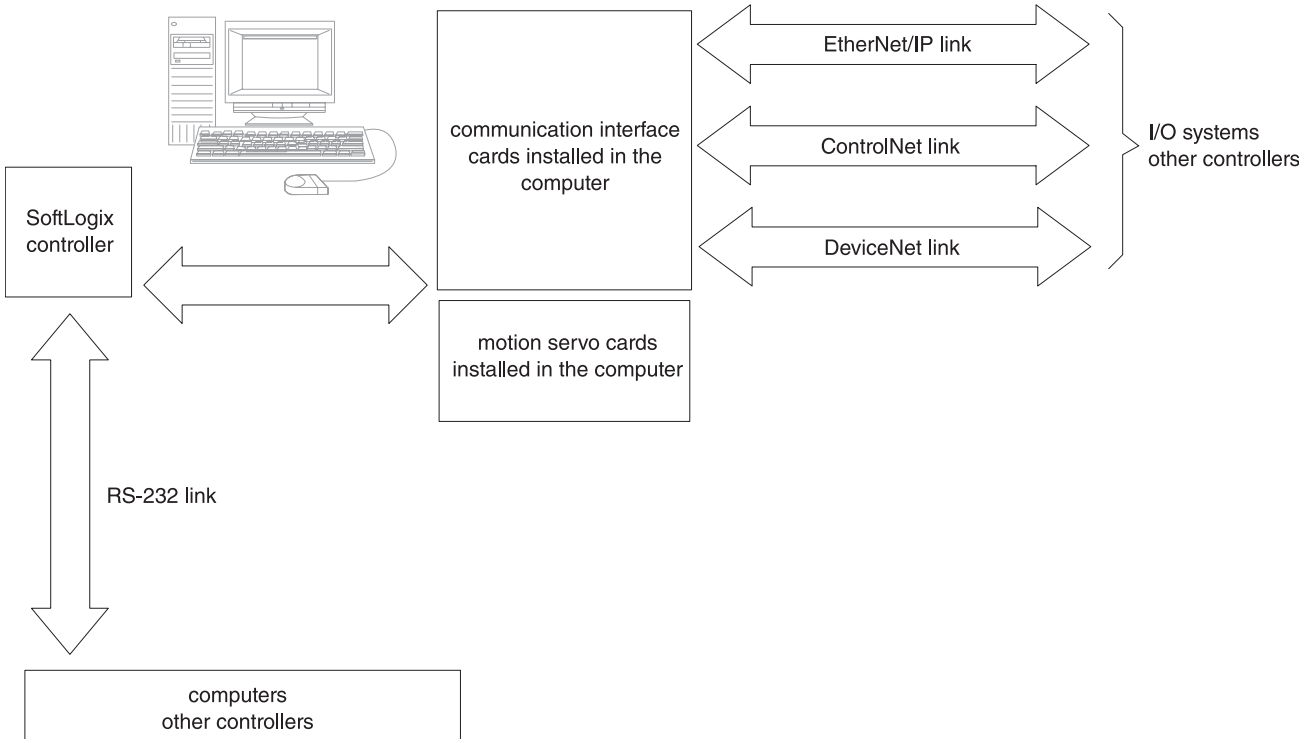
SoftLogix5800 System Overview

The SoftLogix5800 controller is one of the Logix platforms. The SoftLogix controller is a soft control solution that runs in a Microsoft Windows 2000 or Windows XP environment.

A simple SoftLogix system can consist of a single, stand-alone computer and its networked devices.



For a more robust system, use I/O in multiple platforms that is distributed in many locations and connected over multiple I/O links.

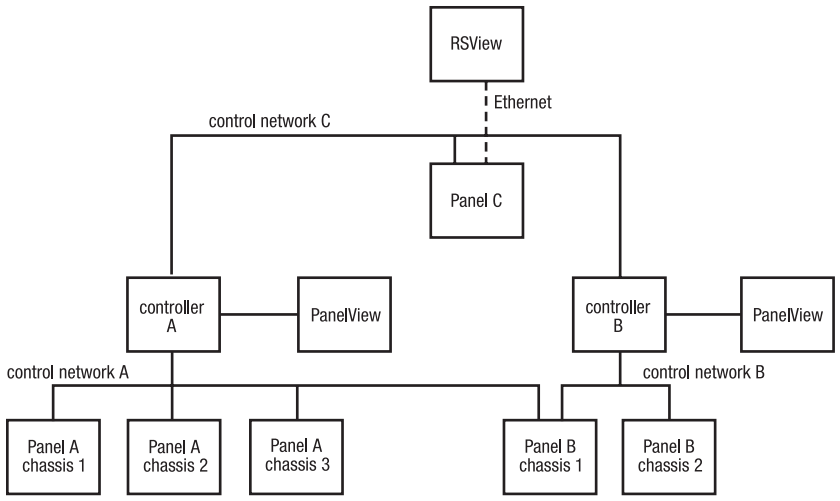


Layout the System

Lay out the system by determining the network configuration and the placement of components in each location.

Place each controller's I/O on an isolated network to maximize the performance and to more easily accommodate future network or system configuration changes. If you plan to share I/O, make sure the I/O is on a network that each controller can access.

For example, assume that Location A and Location B both require a controller. Each controller's I/O is isolated on its own network. Both controllers must interact with time critical information. Panel C does not require a controller and can be a communication bridge.



For a SoftLogix controller to control I/O modules, both the controller and the I/O modules must be directly attached to the same control network. This table lists which controllers in the above example can control which I/O modules. How you configure the I/O modules determines which controller actually controls the modules.

I/O Location	Controller in Panel A, Chassis 1	Controller in Panel B, Chassis 1
Panel A, Chassis 1	yes	no
Panel A, Chassis 2	yes	no
Panel A, Chassis 3	yes	no
Panel B, Chassis 1	yes	yes
Panel B, Chassis 2	no	yes
Panel C, Chassis 1	yes	yes

Specify a SoftLogix5800 System

Follow these steps as you specify your SoftLogix5800 system.

✓	Step	See	
	1 Select motion requirements. Based on the number of axes, determine how many motion cards you need.	Motion overview SERCOS interface card Analog interface card	page 5 page 7 page 9
	2 Select communication modules. Based on the networks you will use, determine the communication cards you need.	Network overview EtherNet/IP specifications ControlNet specifications DeviceNet specifications Serial specifications	page 11 page 13 page 14 page 15 page 16
	3 Select controllers. Select the appropriate controller based on: • number of communication cards needed. • number of motion axes needed. Select the appropriate remote devices based on supported networks.	Controller specifications Control distributed I/O Communicate with display devices Communicate with controllers Communicating with other devices	page 17 page 20 page 20 page 21 page 21
	4 Select software. Determine the software products you need to configure and program your application.	Available software products Programming software External routines Communication software Network configuration software	page 23 page 24 page 26 page 27 page 29

Step 1 - Select:

- *Size the motion application (use the Motion Analyzer)*
- *How you want to interface the controller and drives*
- *A SERCOS or analog interface module*
- *Associated cable(s)*
- *A removable terminal block (RTB) - only needed for analog interface modules*
- *Select drives, motors, and accessories (use the Motion Analyzer)*

Motion Control Requirements

The Logix approach to motion control employs synchronized, distributed processing and provides a highly-integrated motion solution. The Logix system integrates sequential and motion control to bring unmatched flexibility to machine design and unprecedented efficiency to the manufacturing floor. RSLogix 5000 Enterprise series software supports a comprehensive set of embedded motion instructions that can be programmed using the relay ladder, structured text, or sequential function chart editors.

The Logix architecture supports motion components that work in a wide variety of machine architectures.

- The Kinetix integrated-motion solution uses a SERCOS interface module to perform complex, multi-axis, synchronized motion. With a Kinetix system, you reap the full benefit of the integrated architecture because the integration doesn't stop at the controller. This system integrates the drive, the motor, and even the actuator at a lower cost per axis of motion.
- Logix integrated motion uses the analog family of servo modules for controlling drives/actuators that do not support the SERCOS interface. The analog family of servo modules provide a ±10 voltage analog output and can interface with a variety of feedback device types including rotary/linear absolute and incremental.
- Networked motion provides the ability to connect via the DeviceNet network to a single-axis drive to perform simple, point-to-point indexing. You need Ultraware software for drive and indexing configuration.

Use this selection guide to select the appropriate motion interface. For more information, use the:

- Motion Analyzer CD, publication PST-SG003, to size your motion application and to make final component selection.
- Motion Control Selection Guide, publication GMC-SG001, to verify drive, motor, and accessory specifications.

Select a Motion Interface

You can communicate directly to a servo drive using a motion interface or over a network.

Communicate Directly to a Servo Drive

The controller can control servo drives through these motion interfaces.

If your application requires	Select
Rockwell Automation SERCOS interface drives	1784-PM16SE
Analog command signals	1784-PM02AE

Communicate Over a Network

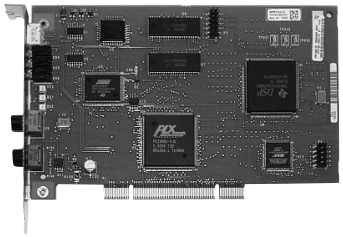
Some servo drives are supported through communication interface modules. The controller can communicate with these servo drives over these networks.

Drives*	EtherNet/IP	ControlNet	DeviceNet	RS-232 Serial
1394 GMC drive and control	No	No	No	Yes
2098 Ultra3000 DeviceNet servo drive	No	No	Yes	No
2098 Ultra5000 intelligent positioning	No	No	Yes	Yes

*Each drive has different options you order for its supported communication networks. See the appropriate catalog or selection information for a drive to make sure you select the appropriate option when specifying a drive for a specific network.

For more information on drives, motors, and accessories, see the Motion Control Selection Guide, publication GMC-SG001.

SERCOS Interface Modules



The 16-axis (1784-PM16SE) SERCOS interface card serves as a link between the SoftLogix platform and intelligent, servo drives. SERCOS is the IEC 61491 SErial Real-time COmmunication System protocol over a fiber optic medium. The SERCOS interface is an open, controller-to-digital drive interface designed for high-speed, real time, serial communications using noise-immune, fiber-optic cables.

The SERCOS interface module uses a single, digital fiber optic link, which eliminates up to 18 discrete wires per axis. Detailed drive status information can be sent from drive to controller and from controller to drive.

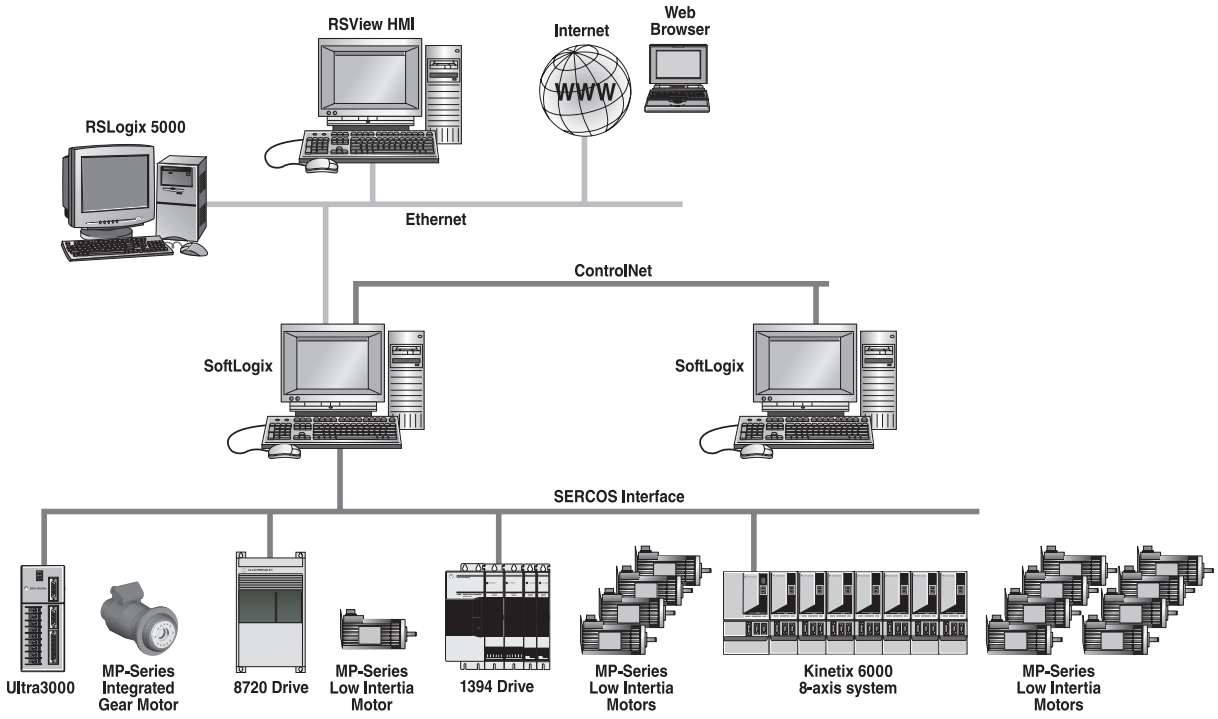
The module is compatible with the RSLogix 5000 motion instructions set and axis configuration utilities. The motion instructions provide a wide range of motion capability, including point-point positioning, gearing, position and time-based camming, and multi-axis linear and circular motion.

The SERCOS interface module can connect to these servo drives.

- 2094 Kinetix 6000 servo drive
- 2098 Ultra3000 SERCOS servo drive
- 1394C SERCOS drive
- 8720MC spindle

Cat. No.	Maximum Number of Axes per Module	Maximum per SoftLogix Controller	Power Dissipation	Current Capacity (Amps) at 3.3V	Backplane Current (mA) at 5V	SERCOS Data Rate
1784-PM16SE	16	1 module (16 axes) per controller	7.5 W	0.050 A	1.065 A	4 Mbits per second **or** 8 Mbits per second

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.



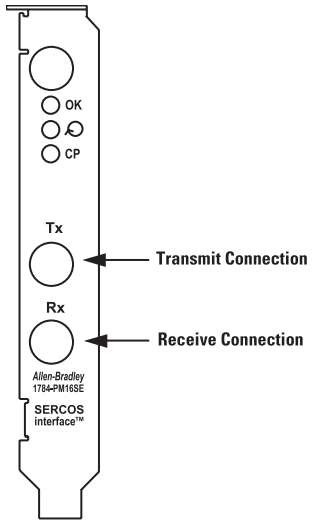
SERCOS Cables

Select one of these fiber optic cables to connect the SERCOS interface module to the drive.

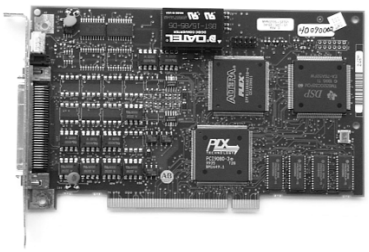
Cat. No.	Description
2090-SCEP*x-x* (no jacket) 2090-SCVP*x-x* (standard jacket) 2090-SCNP*x-x* (nylon jacket)	**Plastic Fiber-optic Cables**✶ 1000 µm plastic simplex fiber-optic cable Transmission range of 1...32 m (3.28...104.99 ft). Allen-Bradley offers plastic, fiber-optic cable assemblies that come in a variety of jackets: • No jacket (chlorinated polyethylene) for use inside an electrical cabinet • A standard jacket (polyvinyl chloride) for use outside of electrical cabinets • A nylon jacket for use in harsh environments
2090-SCVG*x-x*	**Glass Fiber-optic Cables**❄ 200 µm glass fiber optic cable Transmission range of 1...200 m (3.28...656.17 ft). Allen-Bradley offers glass, fiber-optic cable assemblies that come with a standard jacket (polyvinyl chloride) for use in normal environments.

✶The *x-x* determines the length in meters. Specify 0-1 for 0.1 m, 0-3 for 0.3 m, 1-0 for 1 m, 3-0 for 3 m, 5-0 for 5 m, 8-0 for 8 m, 10-0 for 10 m, 15-0 for 15 m, 20-0 for 20 m, 25-5 for 25 m, or 32-0 for 32 m.
❄The *x-x* determines the length in meters. Specify 1-0 for 1 m, 5-0 for 5 m, 8-0 for 8 m, 10-0 for 10 m, 15-0 for 15 m, 20-0 for 20 m, 25-0 for 25 m, 32-0 for 32 m, 50-0 for 50 m, 100-0 for 100 m, 150-0 for 150 m, or 200-0 for 200 m.

Both the transmitter and receiver connections use a F-SMA standard plug that conforms to the F-SMA screw type connector.



Analog Interface Module

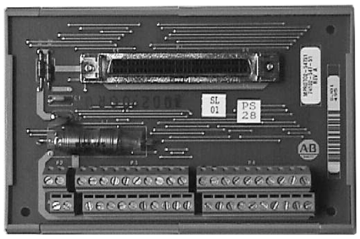


The 1784-PM02AE analog motion card is a 2-axis, closed-loop servo module that you use with a SoftLogix controller. The motion card installs in a 32-bit, local PCI bus slot. You can install as many as four analog motion cards in the same computer, for a total of 8 axes of servo or position-only support.

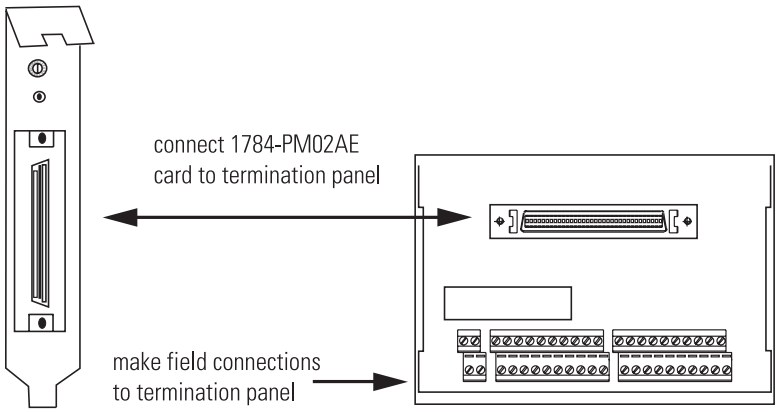
Cat. No.	Maximum Number of Axes per Module	Maximum per Controller	Power Dissipation, Max.
1784-PM02AE	2	8 modules (32 axes) per controller	5.0 W (1 A at 5V dc from computer)

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.

Analog Termination Panel



Use the 1784-PM02AE-TP*xx* termination panel and cable with the 1784-PM02AE motion card to wire drives and encoders. Connect all devices to the 1784-PM02AE motion card via this termination panel.



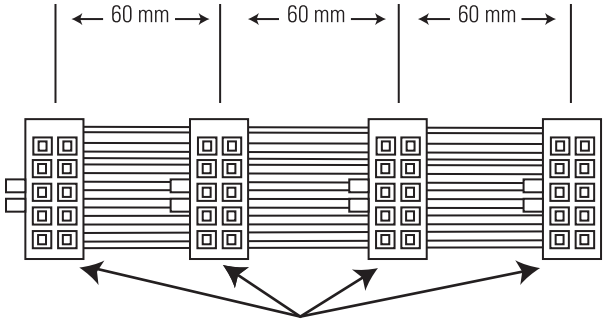
The termination panel mounts on a DIN rail. Use the cable that comes with the termination panel to connect the panel to the servo card.

Cat. No.	Maximum Number of Axes per Termination Panel	Cable
1784-PM02AE-TP01	2	1m cable
1784-PM02AE-TP03		3m cable

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.

Analog Synchronization Cable

If you install multiple 1784-PM02AE motion cards in one computer, you must use the 1784-PMCSY4 synchronization cable to connect as many as four motion cards.



10-pin ribbon connectors

Cat. No.	Cable	Connectors
1784-PMCSY4	28 AWG, 7/36 stranded ribbon cable centerline spacing of 0.05 mm	10-way ribbon cable of gold over nickel

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.

Step 2 - Select:

- *Networks*
- *Communication* modules
- *Associated cables and network equipment*
- *Sufficient modules and cables if you are planning a redundant system*

Network Communications

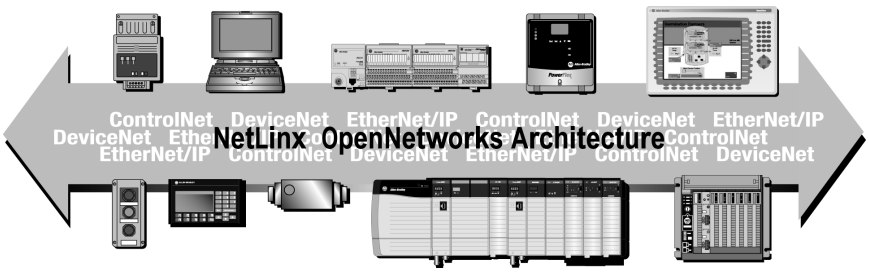
Separate communication interfaces are available for different networks. Install multiple communication interfaces into the SoftLogix computer to configure a gateway to bridge or route control and information data between the different networks.

Messages are sent directly from one communication interface device to another. You can route a message through a maximum of 4 chassis (8 communication hops).

NetLinx Open Network Architecture

NetLinx Open Network Architecture is the Rockwell Automation strategy of using open networking technology for seamless, top-floor to shop-floor integration. The NetLinx-based networks – DeviceNet, ControlNet, and EtherNet/IP – all use the Common Industrial Protocol (CIP), so they speak a common language and share a universal set of communication services. NetLinx architecture, part of the Integrated Architecture, seamlessly integrates all the components in an automation system from a few devices on one network to multiple devices on multiple networks including access to the Internet – helping you to improve flexibility, reduce installation costs, and increase productivity.

- The EtherNet/IP network is an open industrial-networking standard that supports implicit and explicit messaging and uses commercial, off-the-shelf Ethernet equipment and physical media.
- The ControlNet network allows intelligent, high-speed control devices to share the information required for supervisory control, work-cell coordination, operator interface, remote device configuration, programming, and troubleshooting.
- The DeviceNet network offers low-cost, high-speed access to plant-floor data from a broad range of plant-floor devices and a significant reduction in wiring.



Available Networks

You can configure your system for information exchange between a range of devices and computing platforms and operating systems. Select a CompactLogix controller with integrated communications or the appropriate communication device for the networks that meet your needs:

If your application requires	Use this network	Select
• Plant management • Material handling • Configuration, data collection, and control on a single, high-speed network • Time-critical applications with no established schedule • Data sent regularly • Internet/Intranet connection	EtherNet/IP network	Windows-compatible Ethernet card
• High-speed transfer of time-critical data between controllers and I/O devices • Deterministic and repeatable data delivery • Configuration, data collection, and control on a single, high-speed network • Time-critical applications with no established schedule • Media redundancy • Intrinsic safety	ControlNet network	1784-PCICS scanner
• Connections of low-level devices directly to plant floor controllers, without interfacing them through I/O modules • Data sent as needed • More diagnostics for improved data collection and fault detection • Less wiring and reduced start-up time than a traditional, hard-wired system	DeviceNet network	1784-PCIDS scanner
• Modems • Supervisory control and data acquisition (SCADA)	Serial network	Serial port on the computer

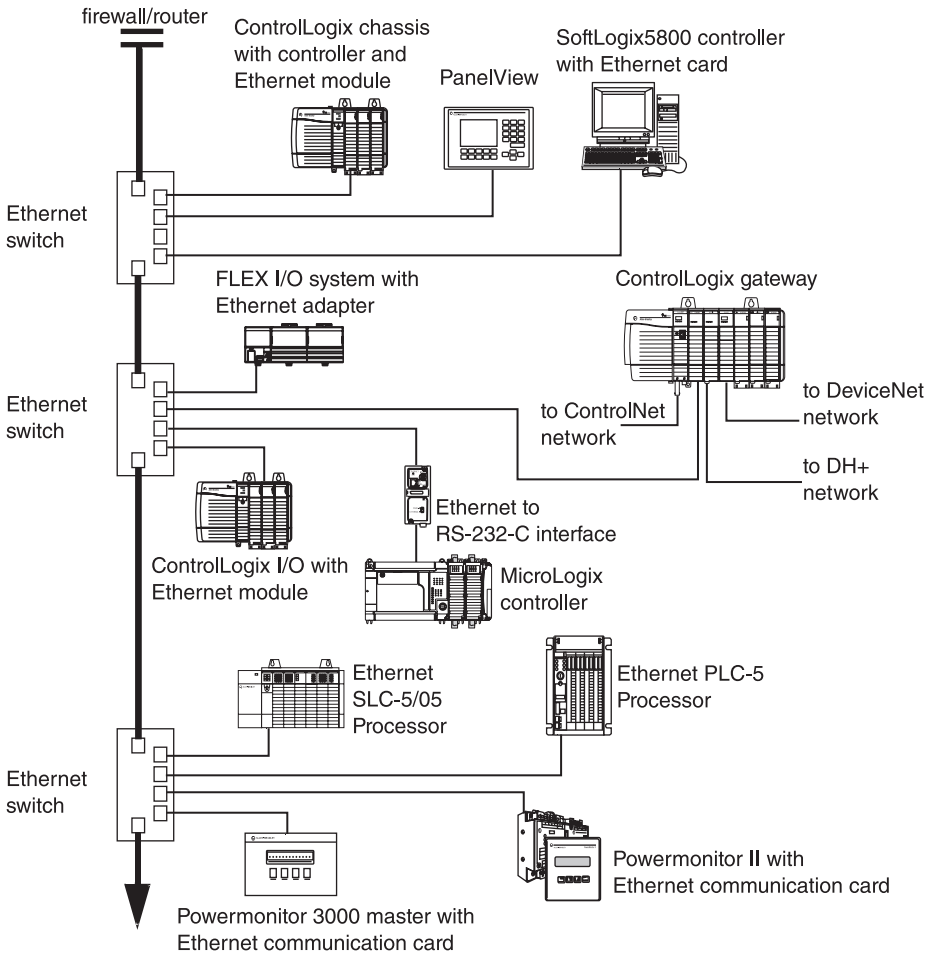
EtherNet/IP Network

The Ethernet Industrial (EtherNet/IP) network protocol is an open industrial-networking standard that supports both real-time I/O messaging and message exchange. It emerged due to the high demand for using the Ethernet network for control applications. The EtherNet/IP network uses off-the-shelf Ethernet communication chips and physical media.

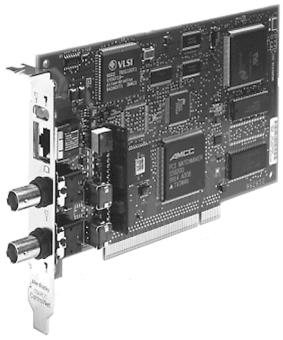
The EtherNet/IP network provides excellent drive and I/O control performance along with HMI information processing and many commercial technologies.

For EtherNet/IP access, the SoftLogix controller uses your user-supplied Ethernet communication card and RSLinx software.

Capability	Requirement
Remote program upload/download programs	RSLinx Lite software version 2.30 or later
Read/write tags	RSLinx single node or later (not the RSLinx Lite that comes with RSLogix 5000 software) RSLinx with OLE for Process Control (OPC) capability (requires RSLinx OEM or later)
Send/receive messages	RSLinx Lite software version 2.30 or later
Control I/O	RSLinx Lite software version 2.41 or later



ControlNet Network

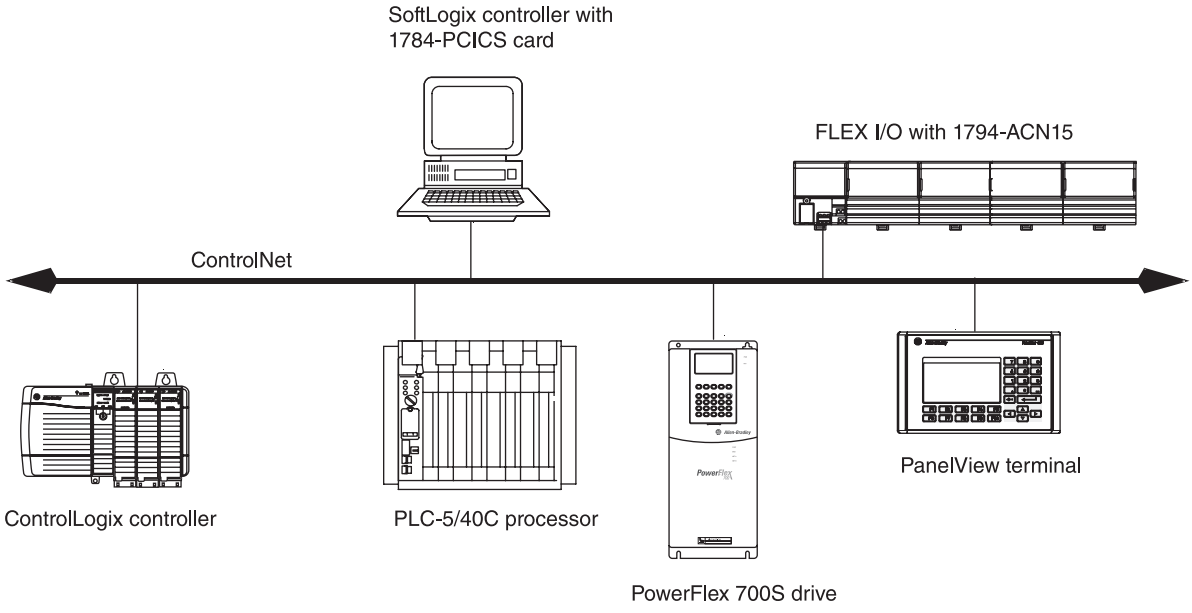


The ControlNet network is an open, state-of-the-art control network that meets the demands of real-time, high-throughput applications. The ControlNet network uses the proven Common Industrial Protocol (CIP) to combine the functionality of an I/O network and a peer-to-peer network providing high-speed performance for both functions.

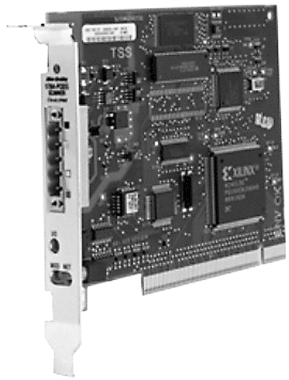
The ControlNet network gives you deterministic, repeatable transfers of all mission-critical control data in addition to supporting transfers of non-time-critical data. I/O updates and controller-to-controller interlocking always take precedence over program uploads and downloads and messaging.

Cat. No.	Communication Rate	Connections	Cable	Backplane Current (mA) at 5V
1784-PCICS	5 Mbps	128 unscheduled messaging connections 127 scheduled I/O connections	RG-6 coaxial cable 1786-RG6 (shield high flex cable) 1786-RG6F (quad shield high flex coax cable) 1786-XT termination resistor Choose taps: • 1786-TPR (T-tap right angle) • 1786-TPS (T-tap straight) • 1786-TPYR (Y-tap right angle) • 1786-TPYS (Y-tap straight)	700 mA

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, FM, C-Tick, CI.



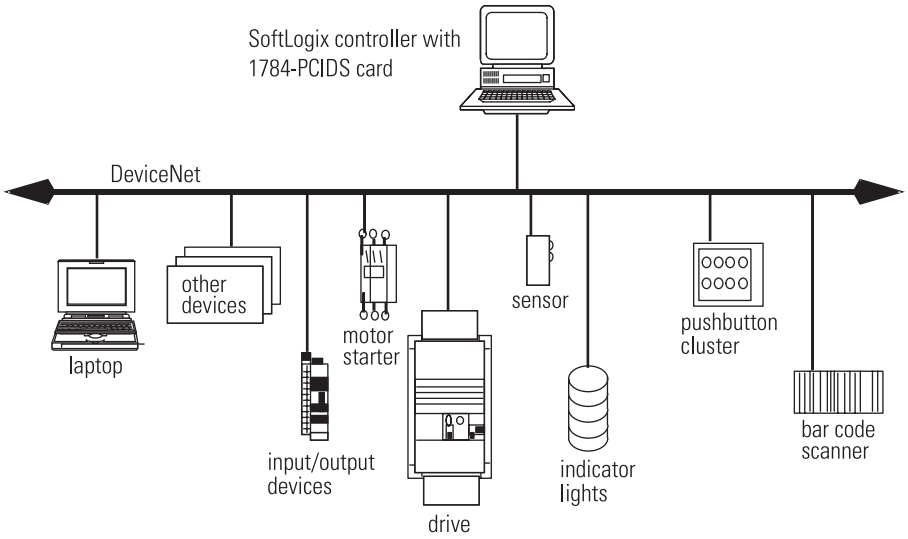
DeviceNet Network



The DeviceNet network is an open, low-level network that provides connections between simple industrial devices (such as sensors and actuators) and higher-level devices (such as PLC controllers and computers). The DeviceNet network uses the proven Common Industrial Protocol (CIP) to provide the control, configure, and data collection capabilities for industrial devices.

Cat. No.	Communication Rate	Connections	Cable	Backplane Current (mA) at 5V	Backplane Current (mA) at 24V
1784-PCIDS	• 125 Kbps • 250 Kbps • 500 Kbps	Requires 2 connections from a dedicated controller	Choose: • KwikLink™ flat media • thick trunk round media • thin trunk round media	625 mA (personal computer)	90 mA (DeviceNet)

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, FM, C-Tick, ODVA.



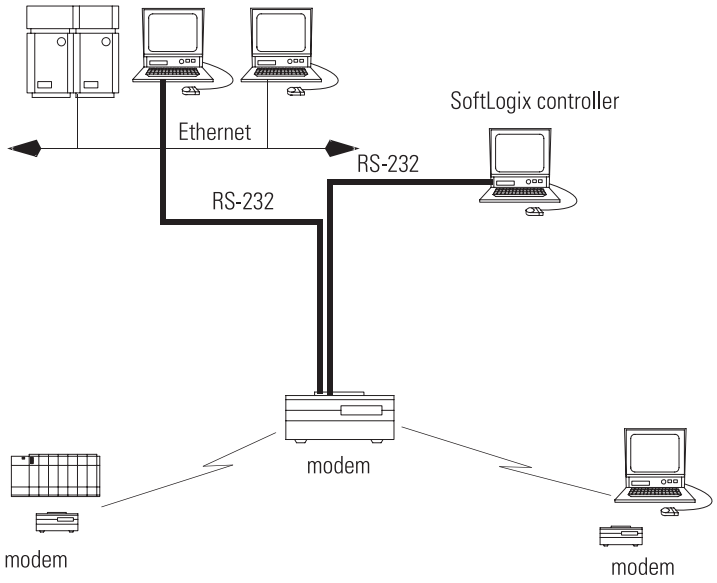
Serial Network

The serial port is compatible with RS-232 serial communication. The serial port supports the DF1 protocol to communicate with other devices on the serial link.

Use this DF1 mode	For
Point-to-point	Communication between a controller and other DF1-compatible devices using DF1 full-duplex protocol.
DF1 radio modem	SCADA applications where controllers exchange data via radio transmission.
DF1 master	Control of polling and message transmission between the master and each slave using DF1 half-duplex polled protocol.
DF1 slave	Using the controller as a slave station in a master/slave serial network using DF1 half-duplex protocol.
User mode (ASCII)	Communication between a controller and an ASCII device, such as a bar code reader.

The serial port is Channel 0 and is fully isolated. The serial channel supports DF1, DH-485, and ASCII protocols.

The SoftLogix controller supports one RS-232 serial port per SoftLogix5800 controller. If you have multiple controllers in the virtual chassis, each one can use a serial port.



Modbus Support

To use Logix5000 controllers on Modbus, you connect through the serial port and execute a specific ladder logic routine. The controller project is available with RSLogix 5000 Enterprise programming software. For more information, see Using Logix5000 Controllers as Masters or Slaves on Modbus Application Solution, publication CIG-AP129.

Step 5 - Select:

- *A controller with sufficient slots in the virtual chassis*

1789 SoftLogix5800 Controllers

The SoftLogix5800 controller is a soft controller based on the Logix platform. The SoftLogix controller takes the control functions normally found in a dedicated programmable controller, encapsulates them in software, and runs them on a commercial operating system.

The multi-tasking operating system supports 32 configurable tasks that can be prioritized. One task can be continuous. The others can be periodic or event tasks. Each task can have as many as 32 programs, each with its own local data and logic, allowing virtual machines to operate independently within the same controller.

1789 Controllers

If you need (maximum)	Use this controller	Available slots
1 SoftLogix5800 controller; 2 MB per controller 2 PCI network interface cards, which can be a mix of:✶ • One 1784-PCICS • One 1784-PCIC • One 1784-PCIDS • One EtherNet/IP card No motion support 1 1784-SIM module No third party virtual backplane module support	1789-L10	3-slot virtual chassis❄
2 SoftLogix5800 controllers; 64 MB per controller 5 PCI network interface cards‡ 2 1784-PM02AE analog motion cards 1 1784-PM16SE SERCOS motion card 5 1784-SIM modules Third party virtual backplane module support	1789-L30	5-slot virtual chassis
6 SoftLogix5800 controllers; 64 MB per controller 16 PCI network interface cards‡ 4 1784-PM02AE analog motion cards 4 1784-PM16SE SERCOS motion card 16 1784-SIM modules Third party virtual backplane module support	1789-L60	16-slot virtual chassis

✶Even though the 1789-L10 controller supports two PCI network interface cards, each card must be a different network card. You cannot have two of the same cards installed in the computer.
❄As of firmware revision 12, the 1789-L10 controller now supports 3 slots.
‡The number of available slots in the virtual chassis is limited by activation level. You can have as many PCI communication cards as you have available slots in the virtual chassis and in the personal computer.

The same SoftLogix5800 controller is supplied in all of the above products. Regardless of the product you have, select the 1789-L60 controller in the RSLogix5000 Enterprise Series software when you specify a controller.

Starter kits are also available for the SoftLogix5800 controller. A starter kit contains the controller and programming software to get a sample application installed, configured, and running.

Cat. No.	Description
1789-STRT1	SoftLogix5800 starter kit - English
1789-STRT1DE	SoftLogix5800 starter kit - German
1789-STRT1ES	SoftLogix5800 starter kit - Spanish
1789-STRT1FR	SoftLogix5800 starter kit - French
1789-STRT1IT	SoftLogix5800 starter kit - Italian
1789-STRT1PT	SoftLogix5800 starter kit - Portuguese

Computer Requirements

The computer that runs the SoftLogix controller should meet these requirements.

Specification	Value
Personal computer	IBM - compatible Pentium IV 1.6 GHz minimum* **Important:** Demanding applications including sequential control, motion, and other local applications running on the PC may require a dual CPU to achieve performance requirements.
Software requirements	Supported operating systems: • Microsoft Windows 2000 with Service Pack 4 (recommended) • Microsoft Windows XP with Service Pack 1 (recommended)
RAM	256 MB of RAM minimum Recommended 512 MB if running the controller and other applications on the same PC
Hard disk space	50 MB of free hard disk space for controller (additional as required by other applications)
Motion requirements	Primary 32-bit PCI slot One slot per motion card 1784-PM16SE requirements • Maximum of four 1784-PM16SE cards per computer • Can associate only one 1784-PM16SE card with one controller 1784-PM02AE requirements • Maximum of four 1784-PM02AE cards per computer • Maximum of four 1784-PM02AE cards can be associated with one controller • Cannot associate a 1784-PM02AE motion card with the same controller as a 1784-PM16SE card
Network requirements	Primary or extended 32-bit PCI slot One slot per communication card Supports 1784-PCICS for ControlNet Supports 1784-PCIDS for DeviceNet
Video requirements	16-color VGA graphics adapter 640 x 480 or greater resolution (256-color 800 x 600 minimum for optimal resolution)

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.
✶The SoftLogix controller has been tested and qualified only on genuine Intel processors.

External Routines

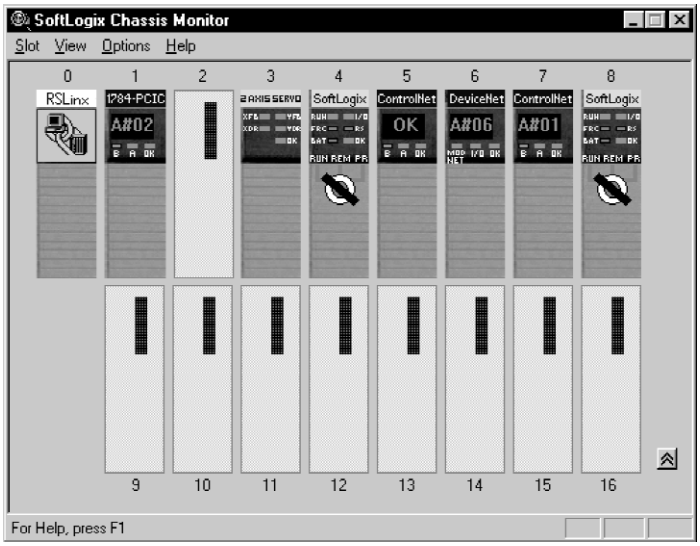
You can use external routines and applications to interact with the SoftLogix controller. From external routines and application, you can:

- collect data from the controller.
- let events in the controller affect an application.
- let events in an application effect the controller.
- save the current controller information (tag data values and configuration information).

Chassis Monitor

The SoftLogix controller uses a chassis monitor to display the devices in its system. These devices reside on a virtual backplane. The virtual backplane functions like an actual hardware backplane in that it connects the controller and other devices, allows bridging, and supports produced and consumed data.

- Create and configure SoftLogix controllers.
- Create and configure communication cards.
- Create and configure servo axis cards.
- Monitor controller status.



Compatibility

Control Distributed I/O Modules

The SoftLogix5800 controller can control these distributed I/O modules using the I/O Configuration tree in RSLogix 5000 programming software.

I/O Modules	EtherNet/IP	ControlNet	DeviceNet
1732 ArmorBlock	Yes	No	Yes
1734 POINT	Yes	Yes	Yes
1734D POINTBlock	No	No	Yes
1738 ArmorPoint	Yes	Yes	Yes
1746 SLC	No	No	No
1756 ControlLogix	Yes	Yes	No
1769 Compact	No	No	Yes
1771 PLC-5	No	Yes❄	No
1790 CompactBlock LDX	No	No	Yes
1791D CompactBlock	No	No	Yes
1792D ArmorBlock MaXum	No	No	Yes
1794 FLEX	Yes	Yes	Yes
1797 FLEX Ex	No	Yes	No
1798 FLEX Armor	No	No	Yes
1799 Embedded	No	No	Yes

✶Requires RSLogix 5000 programming software version 11 or later. Use the generic FLEX profile.
❄Use a 1771-ACN15, 1771-ACNR15 adapter module. Version 10 and later of RSLogix 5000 Enterprise Series software supports 1771 digital, analog, and specialty I/O modules. Previous versions of the software support only 1771 digital I/O modules.

Communicate with Display Devices

The SoftLogix5800 controller can communicate with these display devices.

Display Devices	EtherNet/IP	ControlNet	DeviceNet	RS-232 (DF1)
2711P PanelView Plus terminal	Yes	Yes	Yes	Yes
6182H VersaView CE computer	Yes	Yes	Yes	Yes
2711 PanelView terminal	Yes	Yes	Yes	Yes❄
2711E PanelView terminal	No	Yes	No	No
800E, 800T RediSTATION/RediPANEL operator module	No	No	Yes	No
2706 InView message display	Yes	Yes	Yes	Yes
2706 DL40 Dataliner message display	No	No	No	Yes
2706 DL, DL50 DataLiner message display	No	No	No	Yes
2707 DTAM Plus operator interface	No	No	Yes	Yes❄

✶These devices support DH-485 communication to FlexLogix and CompactLogix controllers.
❄Use PLC/SLC mapping.

Communicate with Other Controllers

The SoftLogix5800 controller can communicate with these controllers.

Controller	EtherNet/IP	ControlNet	DeviceNet	RS-232 (DF1)
1756 ControlLogix 1756 GuardLogix	Yes	Yes	Yes	Yes
1768, 1769 CompactLogix	Yes	Yes	Yes	Yes
1789 SoftLogix5800	Yes	Yes	Yes	Yes
1794 FlexLogix	Yes	Yes	Yes	Yes
5720 PowerFlex 700S with DriveLogix	Yes	Yes	Yes	Yes
1785 PLC-5	Yes✶❄	Yes	Yes‡	Yes
1747 SLC	Yes§	Yes	Yes‡	Yes
1761 MicroLogix	Yes	No	Yes‡	Yes
1762 MicroLogix	Yes	No	Yes‡	Yes
1763 MicroLogix	Yes	No	Yes‡	Yes
1764 MicroLogix	Yes	No	Yes‡	Yes
1772 PLC-2	NA	NA	NA	Yes⌘
1775 PLC-3	NA	NA	NA	Yes❖
5250 PLC-5/250	NA	NA	No	Yes

✶The Ethernet PLC-5 controller must be series C, firmware revision N.1 or later; series D, firmware revision E.1 or later; or series E, firmware revision D.1 or later.
❄The 1785-ENET Ethernet communication interface module must be series A, firmware revision D or later.
‡The PLC-5, SLC, and MicroLogix processors appear as I/O points to the Logix controller. Use the appropriate DeviceNet interface for the controller.
§Use a 1747-L55*x* controller with OS501 or greater.
➤The PLC-2 controller requires a 1785-KA module for DH+ communications.
⌘The PLC-2 controller requires a 1771-KG module for serial (DF1) communications.
✦The PLC-3 controller requires a 1775-S5 module for DH+ communications.
❖The PLC-3 controller requires a 1775-KA module for serial (DF1) communications.
♣The 1756-DH485 module supports full DH-485 functionality.

Communicate with Other Communication Devices

The SoftLogi5800 controller can communicate with these communication devices.

Communication Device	EtherNet/IP	ControlNet	DeviceNet	RS-232 (DF1)
1770-KFD	NA	NA	Yes	NA
9355 RSLinx software	Yes	Yes	No	Yes
1784-KTC, 1784-KTC*x*, 1784-KTC*x*15, 1784-PCIC(S), 1784-PCC	NA	Yes	NA	NA
1784-PCIDS, 1784-PCD	NA	NA	Yes	NA
1784-KTX, 1784-KTXD, 1784-PCMK	NA	NA	NA	NA
1788-CN2DN	NA	Yes	Yes	NA
1788-EN2DN	Yes	NA	Yes	NA
1788-CN2FF	NA	Yes	NA	NA
1203-CN1 ControlNet module	NA	Yes✶	NA	NA
1203-FM1/FB1 SCANport	NA	Yes❄	NA	NA

✶Use the generic module configuration to configure the 1203-CN1 module and a CIP generic MSG instruction to communicate with the module.
❄Use a CIP generic MSG instruction to communicate with the 1203-FM1 SCANport module on a DIN rail that is remote to the controller. The remote DIN rail also requires a 1794-ACN(R)15 ControlNet adapter module.

Determine Total Connection Use

The total connection requirements for a SoftLogix system include both local and remote connections. The SoftLogix controller supports 250 connections. Do not configure more connections than the controller can support. Use the following table to tally connections for the controller.

Connection Type	Device Quantity	Connections per Device	Total Connections
Communication card in the SoftLogix computer		0	0
Remote ControlNet or EtherNet/IP communication device (such as a 1756-CNB module or 1788-ENBT card) Configured as a direct (none) connection Configured as a rack-optimized connection		 0 or 1	
Remote I/O device over ControlNet or EtherNet/IP (direct connection)		1	
1784-PM02AE or 1756-PM16SE motion card		3	
Produced tag		1	
Each consumer		1	
Consumed tag		1	
Cached message		1	
Total connections used			

Each 1784-PCICS ControlNet communication card supports 128 total connections, 127 of which can be scheduled. Do not configure more connections than the the communication cards can support. Use the following table to tally connections for a communication card.

Connection Type	Device Quantity	Connections per Device	Total Connections
Remote I/O device over ControlNet or EtherNet/IP (direct connection)		1	
Produced tag		0	
Each consumer		1	
Consumed tag		1	
Cached message		1	
Total connections used			

Step 5 - Select:

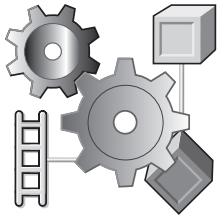
- *The appropriate package of RSLogix 5000 Enterprise Series software and any options*
- *Other software packages for your application*

Software for a SoftLogix5800 System

Your selection of modules and network configuration determines what software packages you need to configure and program your system.

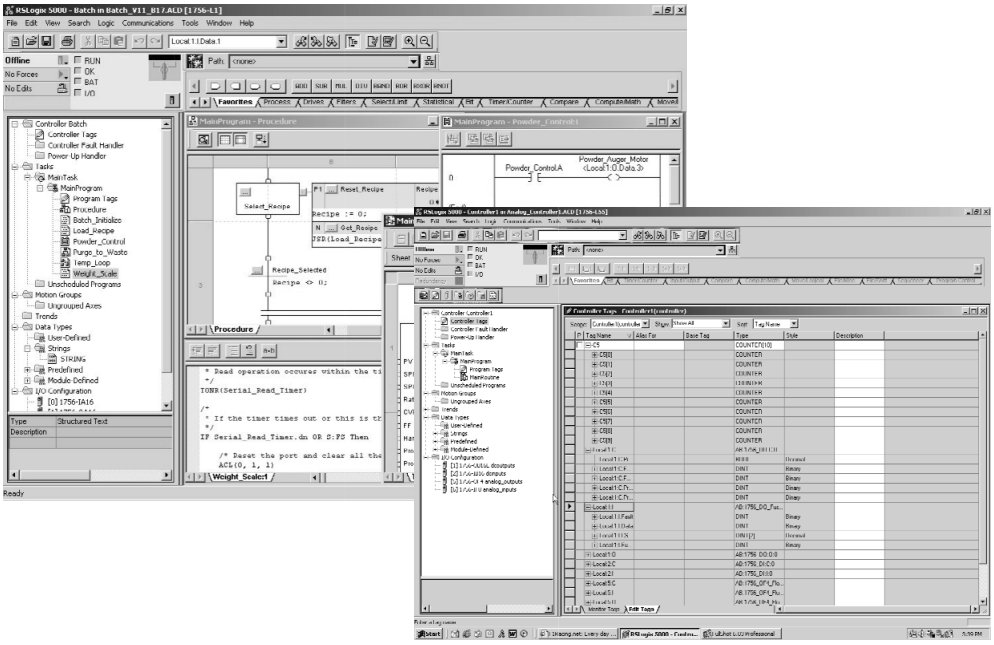
If you have a	You need	Order
1789 SoftLogix controller 1784-PM16SE SERCOS motion card 1784-PM02AE analog motion card	RSLogix 5000 Enterprise Series software	9324 series (RSLogix 5000 Enterprise Series software)
1784-PCICS communication card	RSNetWorx for ControlNet software (comes with the standard/NetWorx option of RSLogix 5000 Enterprise Series software)	9324-RLD300NXENE (RSLogix 5000 Enterprise Series software plus RSNetWorx option) or 9357-CNETL3 (RSNetWorx for ControlNet software)
1784-PCIDS DeviceNet communication card	RSNetWorx for DeviceNet software (comes with the standard/NetWorx option of RSLogix 5000 Enterprise Series software)	9324-RLD300NXENE (RSLogix 5000 Enterprise Series software plus RSNetWorx option) or 9357-DNETL3 (RSNetWorx for DeviceNet software)
Ethernet communication card	RSLinx software (RSLinx Lite software and Bootp server come with RSLogix 5000 Enterprise Series software) or RSNetWorx for EtherNet/IP (comes with the standard/NetWorx option of RSLogix 5000 Enterprise Series software)Scheduling software is not required for EtherNet/IP	9324 series (RSLogix 5000 Enterprise Series software) or 9324-RLD300NXENE (RSLogix 5000 Enterprise Series software plus RSNetWorx option) or 9357-ENETL3 (RSNetWorx for EtherNet/IP software)
	RSLinx Enterprise Edition software (required for Windows 2000 and Windows XP systems if you want the controller to send and receive messages over EtherNet/IP)	Ships with 1789-L10, 1789-L30, and 1789-L60 SoftLogix controllers

Programming Software



RSLogix 5000 Enterprise Series software is designed to work with Rockwell Automation's Logix platforms. RSLogix 5000 Enterprise Series software is an IEC 61131-3 compliant software package that offers relay ladder, structured text, function block diagram, and sequential function chart editors for you to develop application programs. Create your own instructions by encapsulating a section of logic in any programming language into an add-on instruction.

RSLogix 5000 Enterprise Series software also includes axis configuration and programming support for motion control. With RSLogix 5000 Enterprise Series software, you need only one software package for sequential, process, drive, motion control, and safety programming.



RSLogix 5000 Enterprise Series Software Requirements

Description	Value
Personal computer	Pentium II 450 MHz min Pentium III 733 MHz (or better) recommended
Software requirements	Supported operating systems: • Microsoft Windows XP Professional version 2002 (with Service Pack 1 or 2) or XP Home version 2002 • Microsoft Windows 2000 Professional with Service Pack 1, 2, or 3 • Microsoft Windows Server 2003
RAM	128 MB of RAM min 256 MB of RAM recommended
Hard disk space	100 MB of free hard disk space (or more based on application requirements)
Video requirements	256-color VGA graphics adapter 800 x 600 min resolution (True Color 1024 x 768 recommended)

Select the RSLogix 5000 Enterprise Series Software Package

Available Features	Service Edition 9324-RLD000*xx*E✶♠	Mini Edition 9324-RLD200*xx*E✶	Lite Edition 9324-RLD250*xx*E✶	Standard Edition 9324-RLD300*xx*E✶	Standard/ NetWorx Edition 9324-RLD300NX*xx*E✶	Full Edition: Node Locked 9324-RLD600*xx*E Concurrent License 9324-RLD600*xx*F✶	Professional Edition 9324-RLD700NX*xx*E✶
Logix5000 controllers supported	All♠	CompactLogix FlexLogix	CompactLogix FlexLogix	All	All	All‡	All
Relay ladder diagram editor§	Upload/download and view	Full support	Full support	Full support	Full support	Full support	Full support
Function block diagram editor 9324-RLDFBDENE	Upload/download and view	Upload/download Available separately	Full support	Upload/download Available separately	Upload/download Available separately	Full support	Full support
Sequential function chart editor 9324-RLDSFCE	Upload/download and view	Upload/download Available separately	Full support	Upload/download Available separately	Upload/download Available separately	Full support	Full support
Structured text editor 9324-RLDSTXE	Upload/download and view	Upload/download Available separately	Full support	Upload/download Available separately	Upload/download Available separately	Full support	Full support
PhaseManager 9324-RLDPME	Upload/download	Upload/download Available separately	Upload/download Available separately	Upload/download Available separately	Upload/download Available separately	Included	Included
GuardLogix Safety 9324-RLDGLXE✦	Upload/download and view	NA	NA	Upload/download Available separately	Upload/download Available separately	Included	Included
Highly integrated motion	Upload/download and view	Upload/download	Full support	Full support	Full support	Full support	Full support
Graphical trending	Full support	Full support❖	Full support❖	Full support	Full support	Full support	Full support
DriveExecutive Lite 9303-4DTE01ENE	Available separately	Available separately	Available separately	Included	Included	Included	Included
PIDE autotune 9323-ATUNEENE	Available separately	Available separately	Available separately	Available separately	Available separately	Included	Included
RSMACC audit support	Included	Included	Included	Included	Included	Included	Included
FuzzyDesigner 9324-RLDFZYENE✦	NA	Available separately	Available separately	Available separately	Available separately	Available separately	Available separately
RSLogix Emulate 5000 9310-WED200ENE	Available separately	NA	NA	Available separately	Available separately	Available separately	Included
Logix CPU security	Included	Included	Included	Included	Included	Included	Included
Routine source protection	Included	Included	Included	Included	Included	Included	Included
RSMACC (security server) client	Included	Included	Included	Included	Included	Included	Included
Standalone security server	Included	Included	Included	Included	Included	Included	Included
RSLinx Classic software	Lite included	Lite included	Lite included	Lite included	Lite included	Lite included	OEM included✦
RSNetWorx for ControlNet software RSNetWorx for DeviceNet software RSNetWorx for EtherNet/IP software❄	Available separately	Available separately	Available separately	Available separately	Included	Available separately	Included
RSLogix Architect 9326-LGXARCHENE❖	Available separately	Available separately	Available separately	Available separately	Available separately	Available separately	Included
FBD ActiveX faceplates	Included	Included	Included	Included	Included	Included	Included
Tag data upload/download	Included	Included	Included	Included	Included	Included	Included
RSLogix 5000 project compare	Included	Included	Included	Included	Included	Included	Included
Tag custom data monitor	Included	Included	Included	Included	Included	Included	Included
RSView demo (50 tags/2 hours)	Available separately	Available separately	Available separately	Available separately	Available separately	Available separately	Included
Upgrades	To Standard: 9324-RLD0U3*xx*E To Full: 9324-RLD0U6*xx*E To Professional: 9324-RLD0U7*xx*E	To Standard: 9324-RLD2U3*xx*E To Professional: 9324-RLD2U7*xx*E	To Full: 9324-RLD25U6*xx*E To Professional: 9324-RLD25U7*xx*E	To Full: Multi-language pack⌘	NA	Node Locked to Concurrent License: 9324-RLD6U6F*xx*U To Professional: 9324-RLD6U7*xx*E	NA

✶Replace *xx* in the catalog number with the appropriate language designation: ZH=Chinese, EN=English, FR=French, DE=German, IT=Italian, JP=Japanese, KO=Korean, PT=Portuguese, and ES=Spanish.
♠Service Edition supports controllers running firmware revision 12 and later.
‡Full Edition supports controllers running firmware revision 10 and later.
§A multiple language editor package is available as 9324-RLDMLPE. It contains the function block, sequential function chart, and structured text editors.
❄RSNetWorx for ControlNet software is 9357-CNETL3. RSNetWorx for DeviceNet software is 9357-DNETL3. RSNetWorx for EtherNet/IP software is 9357-ENETL3. They are available together as 9357-ANETL3.
⌘The multiple language editor package (9324-RLDMLPE) is not the same as an upgrade, but it extends the programming languages to match those in a Full package.
❖As of RSLogix 5000 programming software, version 15.
✦As of RSLogix 5000 programming software, version 16.

Incorporating External Routines

Use any programming language that can create a Windows DLL (C and C++) to develop RSLogix 5000 routine objects to invoke functions developed outside of the RSLogix 5000 Enterprise Series environment. After you develop the routine, use RSLogix 5000 Enterprise Series software to add the routine to the controller organizer and use the routine properties to define the DLL to execute. There are three ways to structure an external routine.

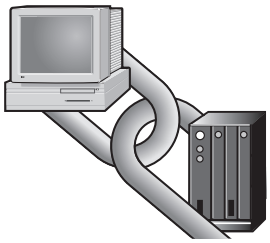
Structure	Considerations
Inline	• Write the code inline. • Keep in mind the controller watchdog timer and make sure the code executes within that time. • Do not perform any screen I/O. • The code executes in real time - it is possible to write code that will interfere with control logic.
Spawn thread	• Write the code to spawn a thread of execution. • Make sure you only spawn the thread on the first scan. • Slowly executing code in the thread is not bound by the controller watchdog execution time. • Do not perform any screen I/O. • The code executes in real time - it is possible to write code that will interfere with other logic. • Setting the threshold priority to the lowest might prevent interfering with the execution of other logic. • Consider thread and process termination.
Create process	• Write the code to create another Windows process. • Make sure you only create the process on the first scan. • Use standard Windows interprocess communications techniques. • Slowly executing code in the thread is not bound by the controller watchdog execution time. • You can display user interface elements from the new process. • Set the new process to run at user priority to prevent interfering with the execution of other logic. • Consider thread and process termination.

Integrating External Applications

Using standard programming tools, such as Visual Basic, you can develop external applications that:

- collect data from the controller.
- let events in the controller affect an application.
- let events in an application effect the controller.
- save the current controller information (tag data values and configuration information).

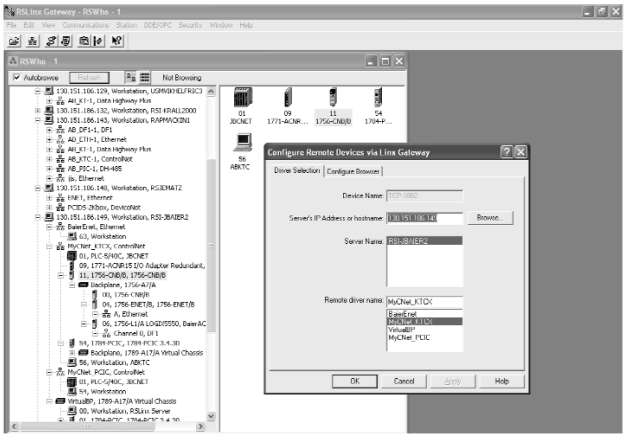
RSLinx Software



RSLinx software is a complete communication server providing plant-floor device connectivity for a wide variety of software applications such as RSLogix 5, RSLogix 500, and RSLogix 5000, RSView32, RSView Enterprise Series, and RSSql/RSBizWare software. In addition, several open interfaces are provided for third-party HMI, data collection and analysis packages, and custom client-application software. RSLinx software can support multiple software applications simultaneously, communicating to a variety of devices on many different networks.

RSLinx software, version 2.*x*, is now joined by RSLinx Enterprise software, a new product within the RSLinx family that provides unparalleled connectivity to Logix processors. RSLinx Enterprise software currently can support working as a data server for widely distributed RSView Supervisory Edition products, RSSql, RSBizWare Historian, and RSBizWare PlantMetrics applications, RSView Machine Edition software iincluding PanelView Plus and VersaView hardware platforms, and RSView Supervisory Edition Station software.

You can communicate from anywhere to anywhere using RSLinx software.



RSLinx Software Requirements

Description	Description
Personal computer	Pentium100 MHz processor (faster processors will improve performance)
Operating system	Supported operating systems: • Microsoft Windows XP • Microsoft Windows 2000 • Microsoft Windows NT version 4.0 with Service Pack 3 or greater • Microsoft Windows ME • Microsoft Windows 98
RAM	32 MB of RAM min 64 MB or more of RAM recommended
Hard disk space	35 MB of free hard disk space (or more based on application requirements)
Video requirements	16-color VGA graphics display 800 x 600 or greater resolution

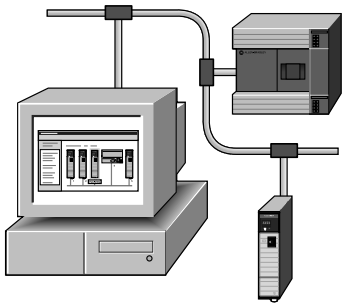
In most cases, RSLinx Lite software comes bundled with controller programming software packages.

You can also download RSLinx Lite for free from the Software Updates link on the Get Support Now website at http://suport.rockwellautomation.com

Select the RSLinx Software Package

Cat. No.	RSLinx Products
Available only bundled with other products such as RSLogix software products.	RSLinx Lite
9355-WABSNENE	RSLinx Single Node
9355-WABOEMENE	RSLinx OEM
9355-WABENE	RSLinx Professional
9355-WABGWENE	RSLinx Gateway
9355-WABCENE	RSLinx SDK
9355-RSLETENE	RSLinx Enterprise

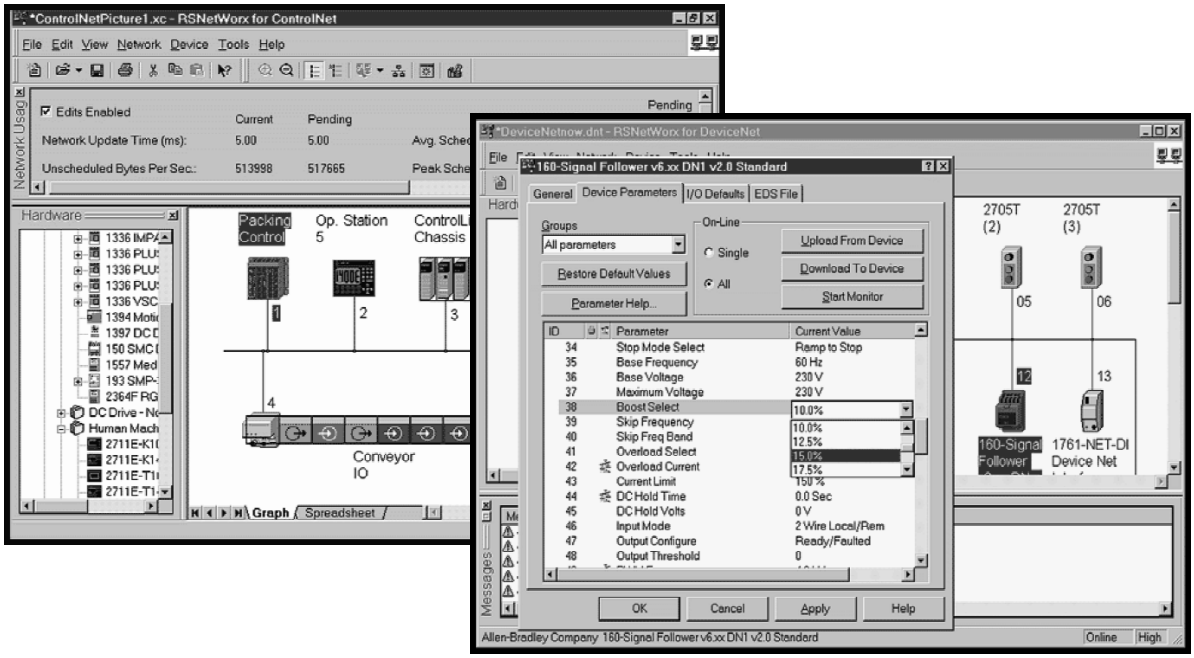
Network Configuration Software



RSNetWorx software is the configuration tool for your control network. With RSNetWorx software you can create a graphical representation of your network configuration and configure the parameters that define your network.

Use RSNetWorx software for:

- ControlNet software to schedule network components. The software automatically calculates network bandwidth for the entire network, as well as the bandwidth used by each network component. You must have RSNetWorx software to configure and schedule ControlNet networks.
- DeviceNet software to configure DeviceNet I/O devices and create a scan list. The DeviceNet scanner stores the configuration information and scan list.
- EtherNet/IP software to configure EtherNet/IP devices using IP addresses or host names.



RSNetWorx Software Requirements

Description	EtherNet/IP	ControlNet	DeviceNet
Personal computer	Intel Pentium or Pentium-compatible computer		
Operating system	Supported operating systems: • Microsoft Windows XP • Microsoft Windows 2000 • Microsoft Windows 2000 Terminal Server • Microsoft Windows NT version 4.0 with Service Pack 6 or later • Microsoft Windows ME • Microsoft Windows 98		
RAM	32 MB of RAM min More memory is required for large networks		
Hard disk space	Minimum: 108 MB (includes program and hardware files) Full support: 115...125 MB (includes program, online help, tutorial, and hardware files)	Minimum: 115 MB (includes program and hardware files) Full support: 168...193 MB (includes program, online help, tutorial, and hardware files)	Minimum: 190 MB (includes program and hardware files) Full support: 230...565 MB (includes program, online help, tutorial, and hardware files)
Video requirements	16-color VGA graphics adapter 640 x 480 resolution minimum 800 x 600 resolution recommended		
Other	RSLinx Lite software, version 2.41 or later, to use RSNetWorx software online	RSLinx Lite software, version 2.4 or later, to use RSNetWorx software online	RSLinx Lite software, version 2.4 or later, to use RSNetWorx software online

In some cases, RSNetWorx software comes bundled with controller programming software packages.

Select the RSNetWorx Software Package

Cat. No.	Description
9357-CNETL3	RSNetWorx for ControlNet software
9357-DNETL3	RSNetWorx for DeviceNet software
9357-ENETL3	RSNetWorx for Ethernet/IP software
9357-ANETL3	RSNetWorx for ControlNet, Ethernet/IP and DeviceNet software
9357-CNETMD3E	RSNetWorx for ControlNet software with MD, includes DriveExecutive Lite software
9357-DNETMD3E	RSNetWorx for DeviceNet software with MD
9357-ENETMD3E	RSNetWorx for EtherNet/IP software with MD
9357-ANETMD3E	RSNetWorx for ControlNet, DeviceNet, and Ethernet/IP software with MD

Summary

As you select devices for your SoftLogix5800 system, keep these guidelines in mind.

✓	Step		Select
	1	**Select motion control and drives requirements.**	• The size of the motion application (use the Motion Analyzer) • How you want to interface the controller and drives • Type of motion interface, either SERCOS or analog • Associated cable(s) • Drives, motors, and accessories (use the Motion Analyzer)
	2	**Select communication cards.**	• Networks • Communication cards • Associated cable(s) and network equipment
	3	**Select controllers.**	• A controller with sufficient slots in the virtual chassis

Notes

Notes

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